TECHNICAL SERVICES DIVISION

OFFICE OF ENGINEERING

OPERATIONAL PLAN

1991-1992

September, 1991

James J. Murphy, Division Director

TECHNICAL SERVICES DIVISION

MISSION: To provide materials and geotechnical engineering services and targeted engineering research in a timely and cost-effective manner for the Department and other governmental agencies.

This is accomplished through:

* Development and recommendation of engineering policies, standards, and specifications.
* Management of a quality assurance program for materials incorporated into Department projects.
* Conduct of specialized engineering studies requiring investigations, testing, analysis, and recommendations.

The values we prize:

PEOPLE
TEAMWORK
EXCELLENCE
SERVICE
INTEGRITY

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TECHNICAL SERVICES DIVISION

OPERATIONAL PLAN

1991-1992

CONTENTS

I. PLAN OF ACTION

A. General

The Operational Plan for Technical Services contains and describes the priorities, reorganization, program adjustments, issues and goals for the program area for 1991-92. It is the result of the Operational Planning Process conducted by the program's leaders and managers.

The Plan consists of two sections; (I) Plan of Action and (II) Goals.

The Technical Services program provides materials and geotechnical engineering services and targeted engineering research to the Department through the:

- development and recommendation of engineering policies, standards and specifications.

- management of a materials quality assurance program.

- conduct of specialized engineering studies requiring investigations, testing, and analysis.

These services are provided through the Materials, Soil Mechanics, and Engineering Research and Development Bureaus in the Main Office in conjunction with the Technical Services, Soils, and Materials units in the Regions. The Technical Services program is founded on a multi-million dollar investment in laboratories and equipment in both the Main Office and the Regions and a dedicated, capable staff. There are approximately 260 employees in the Division and over 300 in the Regional counterparts. In the Regions, the program receives its staffing through the Design and Construction budgets.

As part of the Operational Planning Process, program managers identified and discussed a range of issues including:

° Program size and mix
° Department initiatives
° Downsize impacts
° Workforce changes
° Resources decline
° Quality
° Current goals
° Technological developments
° Organizational role changes
° Management improvements

Most of the issues and trends affecting the Department as a whole also impact the Technical Services program. These include development and implementation of a large capital program, downsizing impacts, inadequate or marginal resources, work force issues, new or changing technology and environmental requirements, organizational role change, and emphasis on management improvements. Other issues are somewhat unique to the program particularly its concerns to properly maintain the "technical services infrastructure"; i.e., specialized vehicles, test equipment, laboratories, etc.

The program serves all elements of the Department as well as some external clients because of the program units' expertise and facilities. The majority of services now provided directly support the capital program and this, along with research, are the most significant parts of the mission.

The continued high level, in terms of dollar size ($1.2 billion) and number of projects, of the capital program in '91-'92 will strain the ability to deliver technical services, but the required services will continue to be provided as the program's first priority.

B. Organization

The Division was downsized 9% as a result of '91-'92 Budget activity. Division and Office management selected 27 positions for abolishment under a downsize concept. It was planned that the Division would continue its central mission, provide a full range of services, maintain a flexible posture, operate consistent with desired Main Office/Region role criteria, and operate by dropping, transferring, trimming or reprioritizing certain activities.

This planning envisioned certain organizational changes such as the consolidation of units and shifting of functions. As the central theme of the Operational Planning process, a "reorganization" has been developed. See Appendix A for organization and function charts.

The Regional Technical Services units, while organized along similar lines statewide, don't have a separate budget segregation. Staffing for these units comes from Design and Construction. Recognition needs to be given that the work of these units is at a high and increasing level. New requirements for project scoping work, such as pavement evaluation, are in place and the Division will be transferring more functions to the Regions consistent with "role responsibility" changes.

Under the initiative to change the regional asphalt and concrete quality assurance system no staff changes are planned in '91-'92 except for the drop of 20 TCI's statewide.

C. Program Adjustments

As part of the Operational Planning process, Division managers identified activities, projects, processes, etc., that could be dropped, trimmed, shelved, reprioritized, or transferred to Regions. The theme was to think critically about what had to be done to accomplish the mission with the downsized resources likely to be available in '91-'92.

While "productivity gains and efficiency improvement" concepts were embraced, it was not a "do more with less" approach. That has been done in the past and in many instances quality has suffered. The charge to managers was to be realistic and plan accordingly. The following are areas identified for Division program adjustment in '91-'92. The proposed adjustments include both specific and generic proposals. It is expected that the review of our program will be ongoing throughout the year, using the generic proposals as a guide for further program adjustments.

MATERIALS BUREAU - WORK ADJUSTMENTS

1. Drop routine additional testing of pavement cores submitted to the Bureau for pavement thickness measurement.

2. Drop retests of failed approved materials list products without significant evidence that the material has been changed.

3. Delay the preparation of new contracts for nationwide and regional testing agency services for 1 year by extending the existing contract through February 28, 1993.

4. Publish the "Materials and Equipment Approved List" only once a year in April and issue addenda if needed.

5. Reduce the number of samples taken and number of tests performed for materials with stable histories of acceptable quality.

6. Shift responsibility for collecting FHWA Experimental Feature data to Region that initiated the project, and the report writing to the Main Office program area, e.g., "Visi-Beads", polymer concrete.

7. Shift responsibility to Regions for: reviewing precast box culvert shop drawings; approving standard asphalt mix designs; and routine approvals of new hot asphalt concrete holding bins.

8. Lower priority on some: FHWA Experimental Feature projects; evaluations of Approved List products; commitments to SHRP, NASHTO, AASHTO, TRB, etc.; and new product evaluation.

SOIL MECHANICS BUREAU - WORK ADJUSTMENTS

1. Evaluate the effects on the total program of delays or use of conservative "standard" actions when setting priorities.

2. Reduce Value Engineering reviews if there is not a clear advantage to the Department.

3. Use more pre-engineered wall designs (from Standard Sheets).

4. Use total excavation and backfill of all shallow and moderate depth swamps rather than evaluating preload or stage construction.

5. Defer development of the horizontal permeability tests for pavement subbase design.

6. Notify all Regional construction staff to plan ahead to get gravel samples to the Soil Mechanics Bureau early to reduce possible construction delays.

7. Request the Regional construction groups to send only staff assigned to earthwork inspection to the Earthwork Inspector's Schools.

8. Consider reduction in our participation in NASHTO Regional testing programs.

9. Review the priority given to new product applications with concentration on new products with high return to the Department.

10. Develop a screening process for design projects to identify projects where staff effort can be safely reduced with little effect on the construction costs.

ENGINEERING RESEARCH & DEVELOPMENT BUREAU - WORK ADJUSTMENTS

1. Reduce editing services for outside clients.

2. Terminate older, uncompleted, less cost-effective research projects.

3. Shelve lower priority ERTAP or consultation projects.

4. Reduce less cost-effective consultation services and concentrate on project work.

5. Slip ERTAP Cycle 5 approximately 10 months due to the required transition to the Federal Fiscal Year and workload capacity

6. Obtain required technician field testing support by requesting temporary positions.

D. Issues

Technical Services' activities are diverse in scope and large in number. During the '91-'92 period many items are underway or planned that are particularly issue significant. Some of the major items/issues are:

- Executive Order on Waste Utilization and Recycling. The Department is required to develop specifications for rubber/glass paving mixes for review by mid '91 and implementation by mid '92. See 91-92 Goal 1.

- Fly Ash Fill Demonstration Project. The Department has a Legislative mandate to construct a project. This effort has been subject to administrative and environmental delays but is expected to progress.

- Asphalt/Concrete (Quality Assurance). A multi-year initiative is underway to change the QA program for these important materials. This major effort will impact Regions, suppliers, and contractors.

- HPR Funding. Additional funding is expected in the new highway act and determinations will be needed on its use in research and related activity.

- Rock Slope Policy. A revised technical evaluation system will be reviewed and implemented. See 91-92 Goal 3.

- Roadwork, Phase II. The Division will provide input to the Department study on truck policy.

- NPS Funding. Lack of adequate NPS could hinder '91-'92 operations and continue to have adverse long term effects. Continue to seek to restore base.

- Critical Fills. Operational effectiveness could be seriously hampered without the ability to fill critical positions.

II. GOALS

A. Past Goals.

The Technical Services Division adopted seven operational goals in its '90-'91 Operational Plan. Those goals and their status are outlined below.

1. Training - To develop by December 1, 1990, a prioritized list of training needs for the major functions performed in the Division.

   Status: Complete. Eight standard training programs for Technical Services Division occupational specialties were developed. The training programs will be provided to first level supervisors throughout the Division.

2. Technical Services Physical Resource Management - To develop by April 1, 1991, a complete description of the Technical Services Program facilities, vehicles and equipment to be used as a source document to support budget requests.

   Status: Complete. A complete listing has been compiled. The final list will be distributed.

3. Regional Technical Services Groups - Identify and review the Regional Technical Services, Soils, and Materials groups' current and projected tasks and evaluate capability to meet current and projected program needs, by January 31, 1991.

   Status: Modified Goal Complete. The goal's directory of services provided by the regional units has been prepared. The directory will be distributed throughout the Department.

4. Waste Materials Engineering Requirements - Identify problems created by the generation or use of waste in the capital program, and identify required engineering responses for the Office of Engineering by December 31, 1990.

   Status: Modified Goal Complete. Issues of non-compliance with existing waste regulations and inconsistencies in Department specifications were identified.

5. Client Review - To develop a process for a periodic survey and complete the first survey of the Division's departmental clients, to assess the Division's delivery and quality of services by April 1, 1991.

   Status: Complete. The results of the survey will be reviewed in conjunction with the Division review of the Hay survey results. An executive report of the survey results is in preparation.

6. Identify Long-Range Engineering and Technical Needs - Develop a process to regularly canvass Department management and staff to identify long-range engineering and technical needs that may be amenable to solution by the Engineering Research & Development Bureau, by April 1, 1991.

   Status: Terminated. The existing process to identify research needs has successfully generated a targeted research program which fully occupies the existing staff resources. With the loss of the goal manager and the reduction in force of Division staff, it is no longer feasible to pursue this goal.

7. AASHTO Laboratory Accreditation Program - The Materials Bureau will seek AASHTO accreditation of its laboratory for two major construction materials, portland cement concrete and liquid asphalt, by April 1, 1991.

   Status: 95% complete. All actions necessary to meet AASHTO accreditation standards have been completed. The only remaining task is to seek final approval. This goal will be continued in 91-92 until the accreditation process is completed.

B. '91-'92 Goals.

Four new operational goals have been identified for this year and one '90-'91 goal has been carried over for completion. A brief description of those goals is given below. A detailed goal statement and rationale for each goal follow.

1. Glass/Rubber Paving Mixes. Governor Cuomo's Executive Order No. 142 requires the Department to take steps necessary to utilize recycled glass and rubber from waste tires as components of paving materials. Specifications and engineering guidelines for this purpose are to be established by July 1, 1991. Those specifications are to be implemented by July 1, 1992 within available funding and consistent with program requirements. The Division's actions necessary to comply with the executive order will be undertaken as a two phase goal over the next two years.

2. Staff Resource Management. There is a need to document the Technical Services Staffing resources necessary to produce the various units of work in providing services covered by CSSQ Agreements for Highway and Bridge projects. There is also a need to document the mix of different types of scheduled capital projects for estimating the staff required to accomplish the 5 Year Capital Program in time for preparation to budget staffing requests. This goal is to develop a resource management and estimating system to efficiently handle the Division's resource management needs.

3. Rock Slope Policy. The Soil Mechanics Bureau has drafted a policy on the survey of existing rock slopes and their prioritization for remediation of potentially unstable rock slopes. This work has not been identified as a separate program with dedicated funding, rather it is included as an element in the regional capital programs within existing highway funding. To support this decision it will be necessary to complete the draft policy and take the necessary steps to secure executive approval and implement the policy. That course of action will be pursued as a goal.

4. AASHTO Laboratory Accreditation Goal. This '90-'91 Division goal is almost complete, all the elements necessary for accreditation have been instituted within the laboratory. All that remains is the formal accreditation procedure. The existing goal will be carried over into this year until the accreditation process is completed.

TECHNICAL SERVICES DIVISION
OPERATIONAL GOAL 1: GLASS/RUBBER PAVING MIXES

1. Goal Statement and Rationale

Goal Statement: Establish specifications and engineering guidelines for the use of recycled glass and rubber in asphalt concrete pavement by July 1, 1991; and to implement those specifications in the Department's highway capital and maintenance programs by July 1, 1992, within available funding and consistent with program requirements.
Goal Manager: F. S. Szczepanek.

Rationale: Executive Order No. 142 requires the Department to take the steps necessary to implement the use of recycled glass and rubber as components of paving materials. In cooperation with the Office of General Services and the Departments of Economic Development, Environmental Conservation, and Health, the Division will prepare the required specifications and engineering guidelines by July 1, 1991. If the use of these materials are acceptable to these agencies, and if it is possible to use these materials within available funding and consistent with program requirements, the Division will pursue the implementation of those specifications in Department work by July 1, 1992.

2. Steps Required to Complete Goal

A. Information, compilation, and review.
B. Initial contacts with DED, DEC, DOH, OGS, INDUSTRY, FHWA.
C. Prepare specifications/guidelines.
D. Circulate drafts to all parties.
E. Revise specification/guidelines.
F. Implementation steps including pilots.
G. Assist other agencies, local governments.

3. Schedule

	Month															
	'91									'92						
Step	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J
A	X	X	X													
B		X	X													
C		X	X	X												
D				X	X											
E						X	X									
F							X	X	X	X	X	X	X	X	X	X
G														X	X	X

4. Support to be Provided from Outside Technical Services Division

OCIR to assist with press inquiries.

5. Resources Required to Accomplish Goal

	Weeks
Manager - F. Szczepanek, Materials Bureau	3
Team - T. Wohlscheid, Materials Bureau	3
G. Frederick, Materials Bureau	4
R. Perry, Eng. Res. & Dev. Bureau	1
TOTAL	11

TECHNICAL SERVICES DIVISION
OPERATIONAL GOAL 2: STAFF RESOURCE MANAGEMENT

1. Goal Statement and Rationale

Goal Statement: To develop by July 15, 1991 and September 1, 1991 respectively, a complete description of the Technical Services Program Level and Project Level staff resource management work plan to be used in estimating staffing needs to accommodate the Five Year Capital Program.

Rationale: The Technical Services Program's mission includes providing quality and timely technical support to the Department's Capital Projects program through engineering services, exploration and surveys and laboratory and field testing. Adequate staffing in various disciplines will be required to provide these services.

There is a need to document the Technical Services staffing resources necessary to produce the various units of work in providing services covered by CSSQ Agreements for Highway and Bridge projects. There is also a need to document the mix of different types of scheduled capital projects for estimating the staff required to accomplish the 5 Year Capital Program in time for preparation of budget staffing requests.

Different types and locations of projects will yield different and variable scopes of services and staffing needs. If these two forms of information are meshed together into a timeline capital projects - staffing needs table and are summarized with the aid of a computer, the staffing needs or capability of each unit of Technical Services can be determined in advance of any change in Capital Program. This program level staffing information determined by quantifying project level service needs will aid the Department in assessing required staffing at any program level.

A source document will be prepared listing the major services tasks and related staffing needs of the Regional Technical Services and the Main Office Technical Services Division to key into a program and project level staff resource work plan.

2. Steps Required to Complete Goal

A. Obtain, review and analyze existing historical staffing records listed under fiscal year function code summaries to develop staffing standards.
B. Develop conceptual work plan for developing both project level and program level staffing needs.
C. Review of conceptual work plan by Main Office and Regional Functional units to identify needed revisions.
D. Develop final work plans.
E. Solicit additional comments by same to identify possible final revisions.
F. Produce final report on work plan and system documentation.

3. Schedule

	Month (1991)				
Step	MAY 10	JUNE	JULY 15	AUGUST	SEPT. 1
A.	X	X			
B.	X	X			
C.		X	X		
D.		X	X		
E.			X	X	
F.				X	X

4. Support to be Provided from Outside Technical Services Division

- Main Office Soils and Materials Bureaus
- Regional Soils and Materials, Program Planning
- Main Office Implementation Management Team
- Main Office Facilities Design, Structures and Construction

5. Resources Required to Complete Goal

	Weeks
Goal Manager - Raymond L. Gemme, Soil Mechanics Bureau	5
Soils Staff	2
Fred Szczepanek, Materials Bureau	2
Materials Staff	3
TOTAL	12

TECHNICAL SERVICES DIVISION
OPERATIONAL GOAL 3: ROCK SLOPE POLICY

1. Goal Statement and Rationale

Goal Statement: Develop and implement a Department policy which includes an inventory and a hazard rating procedure for potentially unstable rock slopes along highways as an element of regional capital program planning, by February 28, 1992.

Rationale: The Soil Mechanics Bureau has drafted a technical policy and process to rate potentially unstable rock slopes along state highways. The Department has elected to incorporate the remediation of potentially unstable rock slopes as an element of the existing highway program. To implement that decision, the draft policy should be finalized and presented to executive management for adoption. The actions necessary to secure executive approval of the policy and to implement the policy within the regional capital program planning process will be undertaken as a goal.

2. Steps Required to Complete Goal

A. Technical Services Division review.
B. Facilities Design Division, Highway Maintenance Division and Program Planning and Management review; revisions as needed.
C. Presentation to Offices of Engineering and Operations.
D. ECPC action (if required).
E. Publish and distribute the policy and procedure.
F. Region orientations by the Soil Mechanics Bureau.

3. Schedule

	Month							
Step	J	A	S	O	N	D	J	F
A.	X							
B.		X	X					
C.				X	X			
D.					X	X		
E.						X		
F.						X	X	X

4. Support to be Provided from Outside Technical Services Division

None

5. Resources Required to Accomplish Goal

		Weeks
Manager	- W. Moody, Soil Mechanics Bureau	2
Team	- E. Fernau, Soil Mechanics Bureau	3
	- R. Winans, Regions 1	3
	- D. Hadjin, Soil Mechanics Bureau	2
	- R. Grana, Soil Mechanics Bureau	2
	TOTAL	12

TECHNICAL SERVICES DIVISION

OPERATIONAL GOAL NO. 4: AASHTO LABORATORY ACCREDITATION PROGRAM

1. Goal Statement and Rationale

Goal Statement: The Materials Bureau will seek AASHTO accreditation of its laboratory for two major construction materials, portland cement concrete and liquid asphalt, by June 1, 1991. This accreditation will demonstrate that the Bureau's laboratory is capable of producing test results that meet nationally accepted criteria for accuracy, precision and reliability.
Goal Manager: W. J. Brule - Materials Bureau.

Rationale: AASHTO established an Accreditation Program (AAP) in 1988. The objective of AAP is to provide a mechanism for formally recognizing the competency of a testing laboratory to carry out specific tests on construction materials. It is available to all laboratories including independent laboratories, manufacturers' in-house laboratories, university laboratories, and governmental laboratories.

The results from tests performed by the Materials Bureau on construction materials are used for material acceptance and analysis of the material's performance. The accreditation will provide additional assurance that the Bureau produces test results which are accurate, precise, and reliable. Test results can lead to the rejection of the material and on occasion a supplier or contractor will dispute the results. Due to the fact that suppliers and contractors utilize test results from independent laboratories to support their position, and many of these laboratories are AASHTO accredited, it is essential that the State of New York has the same credentials as other laboratories to protect its interests.

The product resulting from this goal will be an accreditation certificate issued to the Materials Bureau by AASHTO.

This work will be accomplished using the existing staff resources in the Materials Bureau.

This goal identifies two major construction materials tested in the Materials Bureau, but other materials will be added in the future. It will also serve as a pilot for laboratory functions in the Soil Mechanics Bureau and/or Regions.

2. Steps Required to Complete Goal

A. Complete application for accreditation.
B. Complete and file AASHTO Accreditation Program - Criteria Compliance Document. This document includes data on organization, personnel, training, facilities and equipment, equipment caliberation and verification, test methods and procedures, and test reports. The major effort will be formalizing existing records and procedures to meet AASHTO requirements.
C. Obtain appropriate on-site assessment from the AMRL and CCRL.
D. Provide AMRL with documentation describing corrective action taken to resolve apparatus, procedural or quality system deficiencies, within 90 days after it has been brought to the laboratory's attention.
E. Participate in AMRL and CCRL proficiency sample test programs which cover the liquid asphalts and portland cement concrete. (The Materials Bureau currently participates in this program.)

F. Provide AMRL with documentation describing findings and actions taken when attempting to determine the reasons for poor proficiency sample test results (those beyond 2 standard deviations of the grand average values) within 60 days after AMRL's issuance of a final proficiency sample report. (This activity is required to maintain accreditation.)

3. Schedule

Steps	Months A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S
A.		X																
B.		X	X	X	X	X	X	X	X	X	X	X	X	X	X			
C. (1)				X											X			
D.					X	X	X											
E. (1)			X			X			X			X			X			
F.				X	X		X	X		X	X						X	X

(1) Scheduled date. Schedule is established by AMRL and CCRL.

4. Support to be Provided from Outside Technical Services Division

None

5. Resources Required to Complete Goal

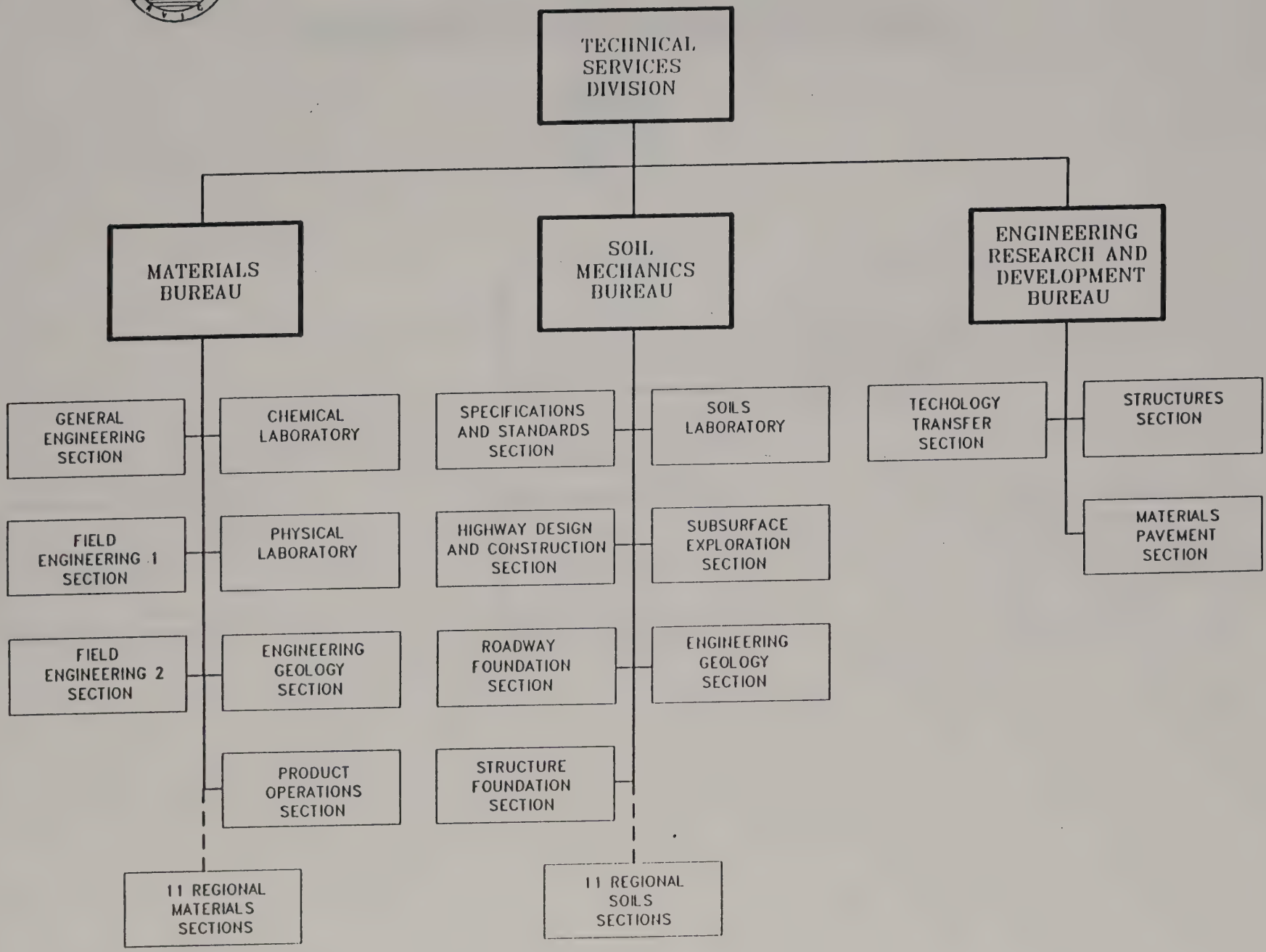
	Weeks
Manager - Wayne Brule, Materials Bureau	1
Team - Walter Morlock, Materials Bureau	3
- James Finke, Materials Bureau	2
- Laboratory Staff, Materials Bureau	10
TOTAL	16

Fees: Fees for AASHTO Accreditation, AMRL, CCRL on-site inspection services, and proficiency samples are included in the annual assessment.

APPENDIX A

ORGANIZATION CHARTS

NEW YORK STATE DEPARTMENT OF TRANSPORTATION



NEW YORK STATE
DEPARTMENT OF TRANSPORTATION

TECHNICAL SERVICES DIVISION

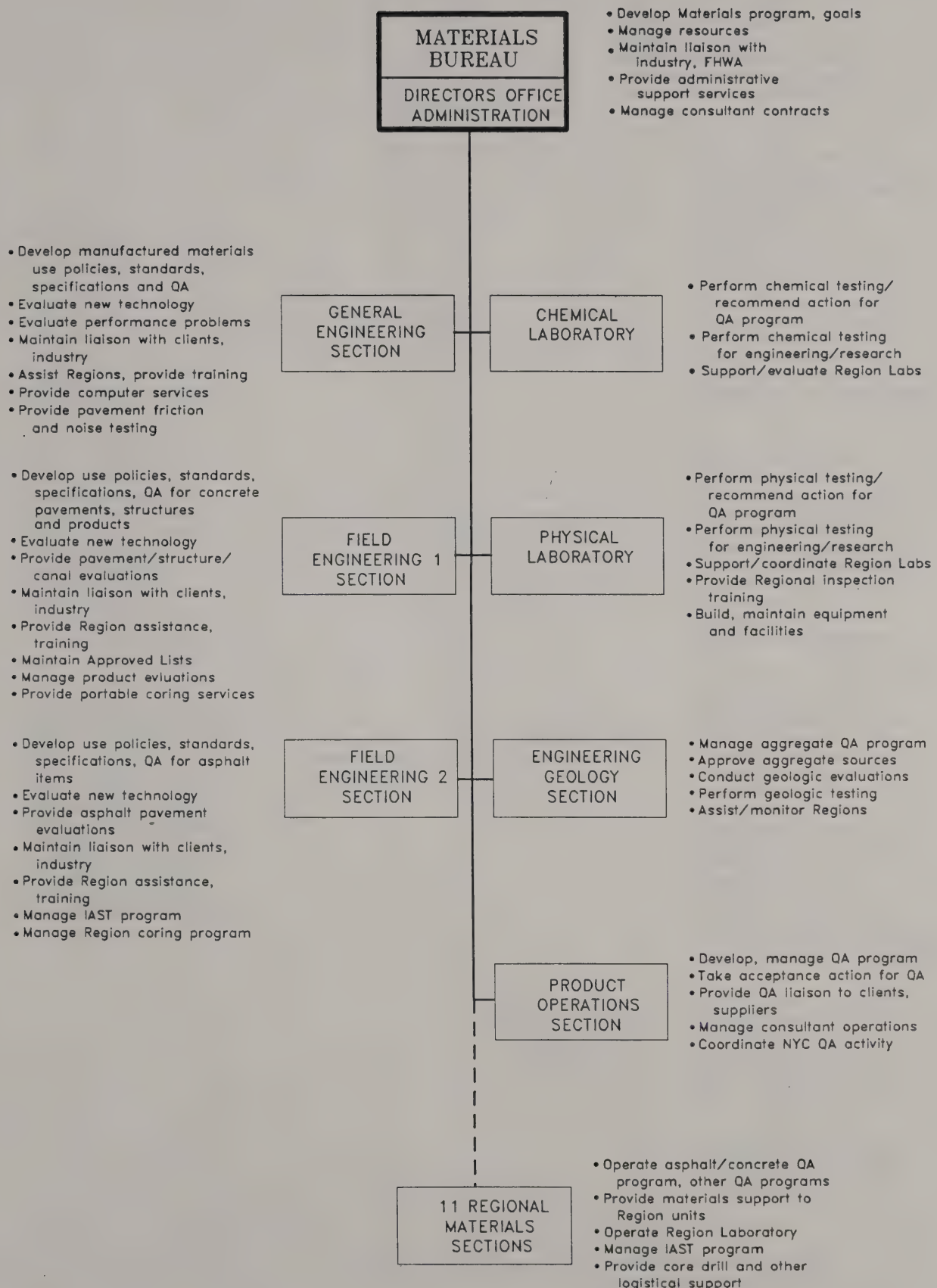
DIRECTORS OFFICE

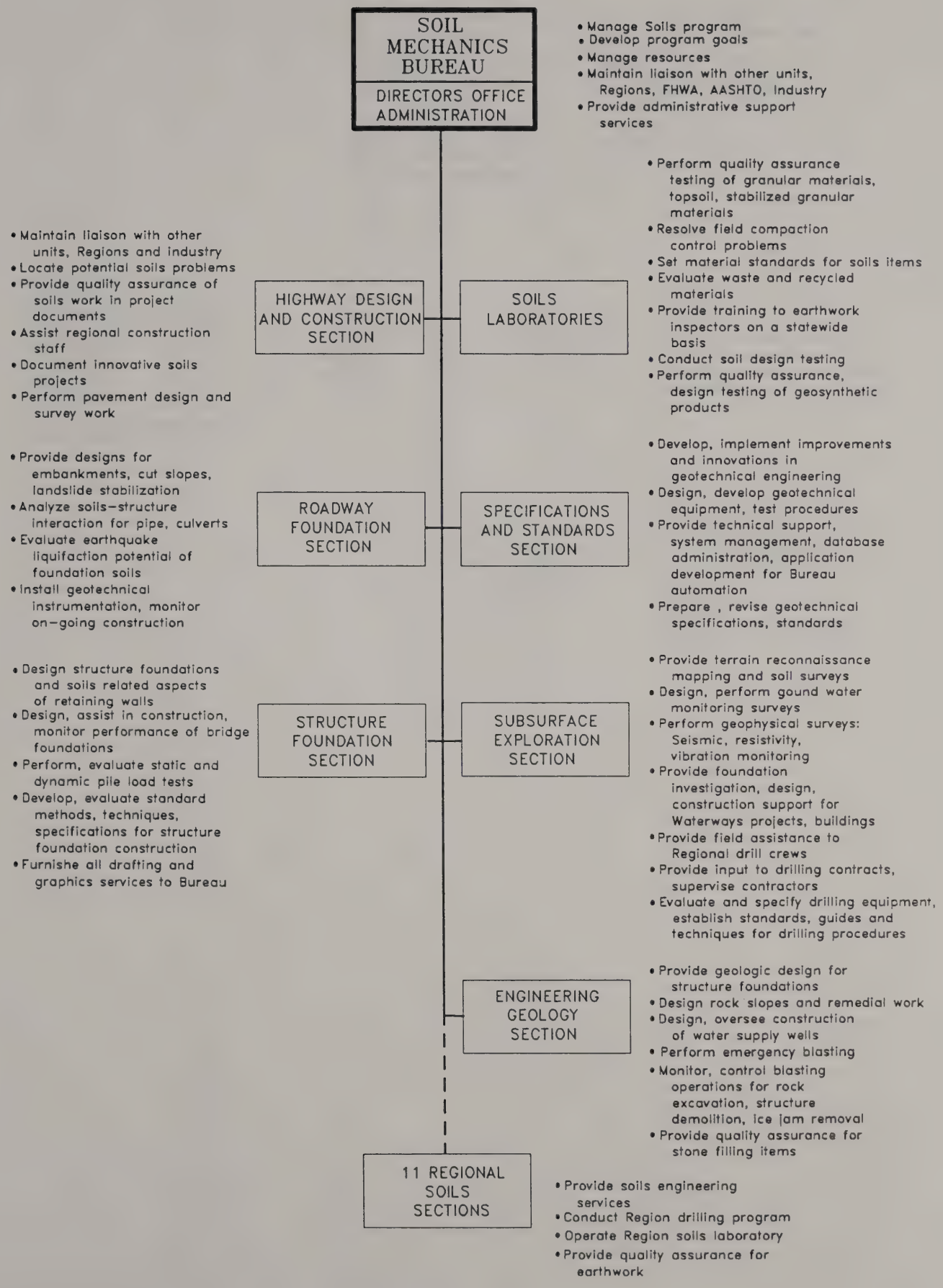
- Develop, plan, manage Technical Services programs and goals
- Obtain and manage resources
- Assist and monitor Bureau and Regional program components
- Provide waste materials engineering services
- Maintain liaison with AASHTO, TRB, SHRP, FHWA
- Provide administrative services

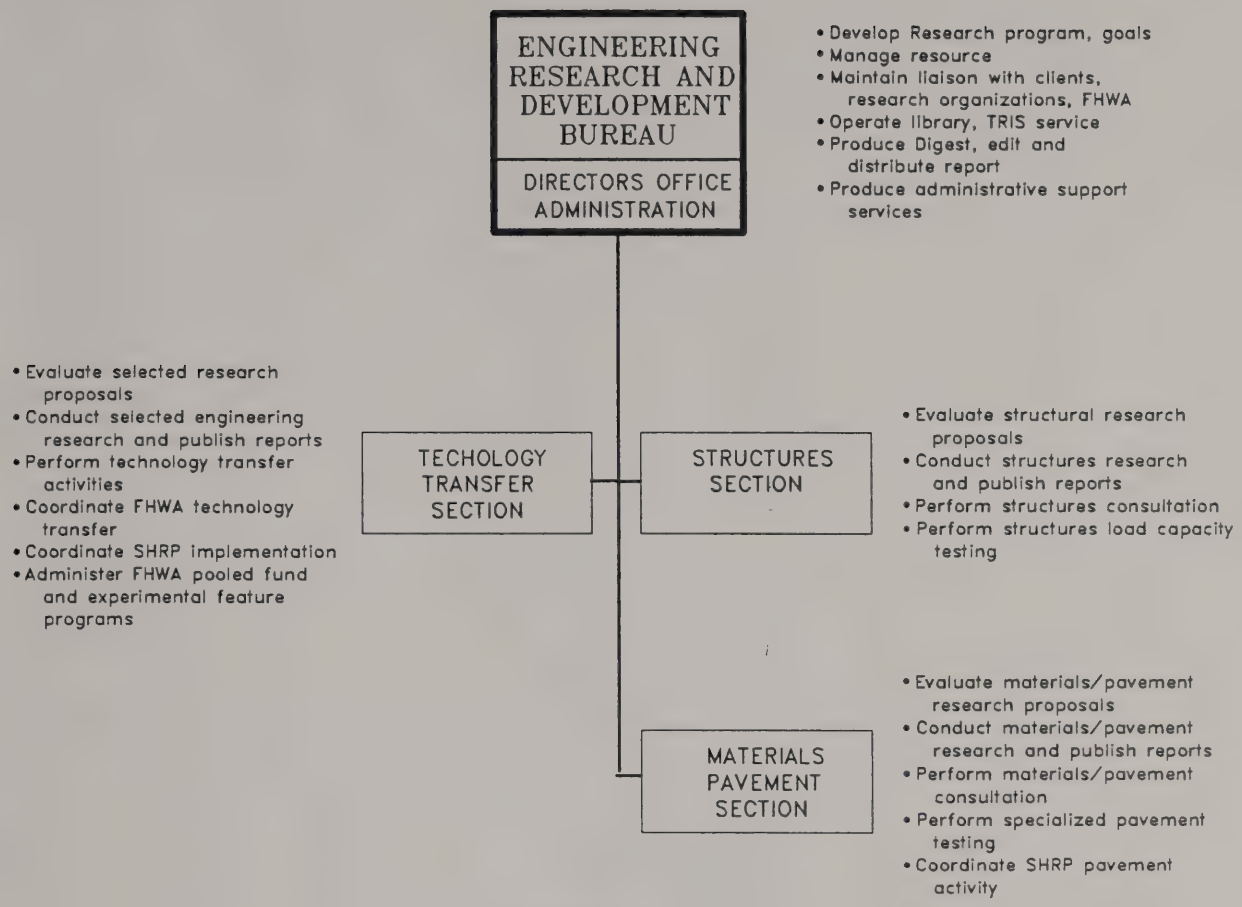
MATERIALS BUREAU

SOIL MECHANICS BUREAU

ENGINEERING RESEARCH AND DEVELOPMENT BUREAU

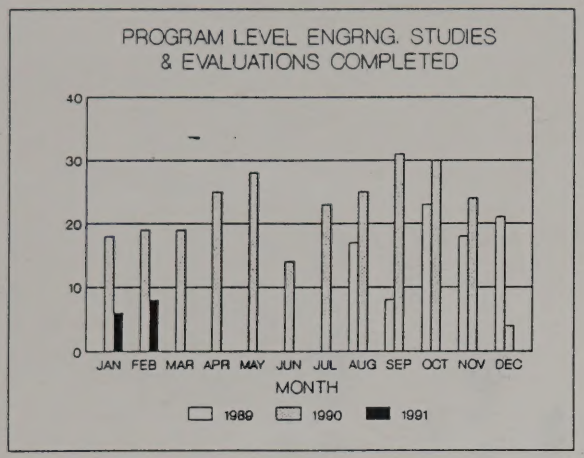

MATERIALS BUREAU
DIRECTORS OFFICE ADMINISTRATION
• Develop Materials program, goals
• Manage resources
• Maintain liaison with industry, FHWA
• Provide administrative support services
• Manage consultant contracts
GENERAL ENGINEERING SECTION
• Develop manufactured materials use policies, standards, specifications and QA
• Evaluate new technology
• Evaluate performance problems
• Maintain liaison with clients, industry
• Assist Regions, provide training
• Provide computer services
• Provide pavement friction and noise testing
CHEMICAL LABORATORY
• Perform chemical testing/ recommend action for QA program
• Perform chemical testing for engineering/research
• Support/evaluate Region Labs
FIELD ENGINEERING 1 SECTION
• Develop use policies, standards, specifications, QA for concrete pavements, structures and products
• Evaluate new technology
• Provide pavement/structure/ canal evaluations
• Maintain liaison with clients, industry
• Provide Region assistance, training
• Maintain Approved Lists
• Manage product evluations
• Provide portable coring services
PHYSICAL LABORATORY
• Perform physical testing/ recommend action for QA program
• Perform physical testing for engineering/research
• Support/coordinate Region Labs
• Provide Regional inspection training
• Build, maintain equipment and facilities
FIELD ENGINEERING 2 SECTION
• Develop use policies, standards, specifications, QA for asphalt items
• Evaluate new technology
• Provide asphalt pavement evaluations
• Maintain liaison with clients, industry
• Provide Region assistance, training
• Manage IAST program
• Manage Region coring program
ENGINEERING GEOLOGY SECTION
• Manage aggregate QA program
• Approve aggregate sources
• Conduct geologic evaluations
• Perform geologic testing
• Assist/monitor Regions
PRODUCT OPERATIONS SECTION
• Develop, manage QA program
• Take acceptance action for QA
• Provide QA liaison to clients, suppliers
• Manage consultant operations
• Coordinate NYC QA activity
11 REGIONAL MATERIALS SECTIONS
• Operate asphalt/concrete QA program, other QA programs
• Provide materials support to Region units
• Operate Region Laboratory
• Manage IAST program
• Provide core drill and other logistical support

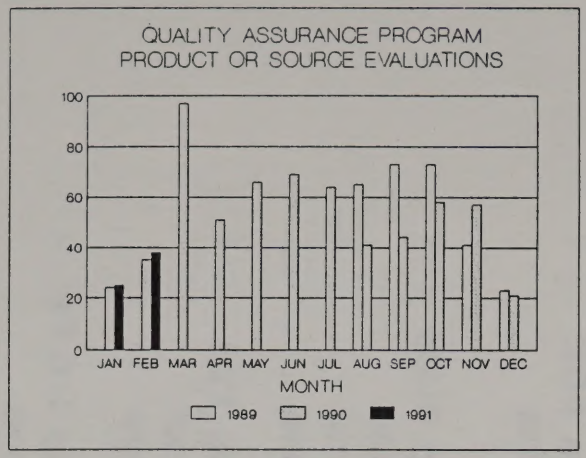

SOIL MECHANICS BUREAU
DIRECTORS OFFICE ADMINISTRATION
• Manage Soils program
• Develop program goals
• Manage resources
• Maintain liaison with other units, Regions, FHWA, AASHTO, Industry
• Provide administrative support services
HIGHWAY DESIGN AND CONSTRUCTION SECTION
• Maintain liaison with other units, Regions and industry
• Locate potential soils problems
• Provide quality assurance of soils work in project documents
• Assist regional construction staff
• Document innovative soils projects
• Perform pavement design and survey work
SOILS LABORATORIES
• Perform quality assurance testing of granular materials, topsoil, stabilized granular materials
• Resolve field compaction control problems
• Set material standards for soils items
• Evaluate waste and recycled materials
• Provide training to earthwork inspectors on a statewide basis
• Conduct soil design testing
• Perform quality assurance, design testing of geosynthetic products
ROADWAY FOUNDATION SECTION
• Provide designs for embankments, cut slopes, landslide stabilization
• Analyze soils–structure interaction for pipe, culverts
• Evaluate earthquake liquifaction potential of foundation soils
• Install geotechnical instrumentation, monitor on–going construction
SPECIFICATIONS AND STANDARDS SECTION
• Develop, implement improvements and innovations in geotechnical engineering
• Design, develop geotechnical equipment, test procedures
• Provide technical support, system management, database administration, application development for Bureau automation
• Prepare , revise geotechnical specifications, standards
STRUCTURE FOUNDATION SECTION
• Design structure foundations and soils related aspects of retaining walls
• Design, assist in construction, monitor performance of bridge foundations
• Perform, evaluate static and dynamic pile load tests
• Develop, evaluate standard methods, techniques, specifications for structure foundation construction
• Furnishe all drafting and graphics services to Bureau
SUBSURFACE EXPLORATION SECTION
• Provide terrain reconnaissance mapping and soil surveys
• Design, perform gound water monitoring surveys
• Perform geophysical surveys: Seismic, resistivity, vibration monitoring
• Provide foundation investigation, design, construction support for Waterways projects, buildings
• Provide field assistance to Regional drill crews
• Provide input to drilling contracts, supervise contractors
• Evaluate and specify drilling equipment, establish standards, guides and techniques for drilling procedures
ENGINEERING GEOLOGY SECTION
• Provide geologic design for structure foundations
• Design rock slopes and remedial work
• Design, oversee construction of water supply wells
• Perform emergency blasting
• Monitor, control blasting operations for rock excavation, structure demolition, ice jam removal
• Provide quality assurance for stone filling items
11 REGIONAL SOILS SECTIONS
• Provide soils engineering services
• Conduct Region drilling program
• Operate Region soils laboratory
• Provide quality assurance for earthwork

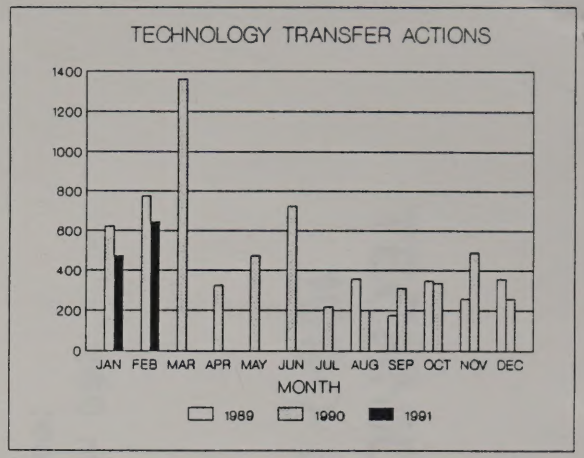

ENGINEERING RESEARCH AND DEVELOPMENT BUREAU
DIRECTORS OFFICE ADMINISTRATION
• Develop Research program, goals
• Manage resource
• Maintain liaison with clients, research organizations, FHWA
• Operate library, TRIS service
• Produce Digest, edit and distribute report
• Produce administrative support services
TECHOLOGY TRANSFER SECTION
• Evaluate selected research proposals
• Conduct selected engineering research and publish reports
• Perform technology transfer activities
• Coordinate FHWA technology transfer
• Coordinate SHRP implementation
• Administer FHWA pooled fund and experimental feature programs
STRUCTURES SECTION
• Evaluate structural research proposals
• Conduct structures research and publish reports
• Perform structures consultation
• Perform structures load capacity testing
MATERIALS PAVEMENT SECTION
• Evaluate materials/pavement research proposals
• Conduct materials/pavement research and publish reports
• Perform materials/pavement consultation
• Perform specialized pavement testing
• Coordinate SHRP pavement activity

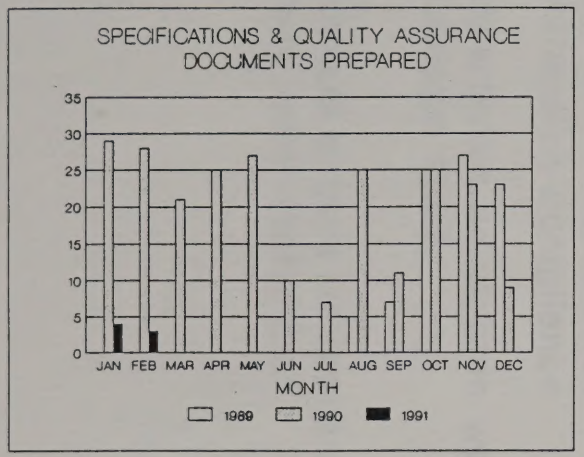
APPENDIX B

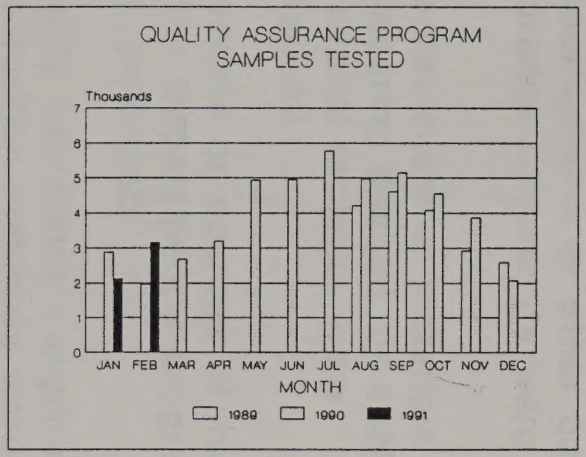
PERFORMANCE REPORT

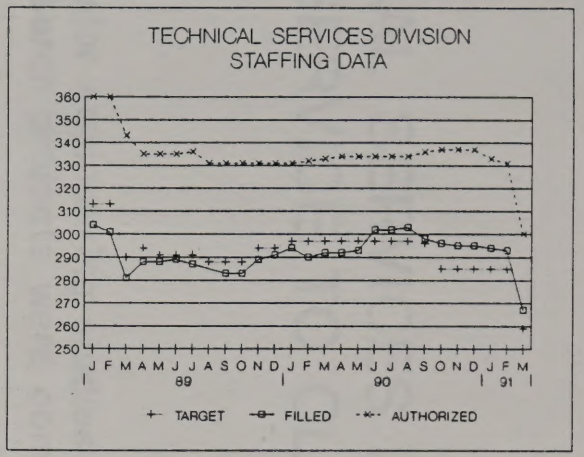


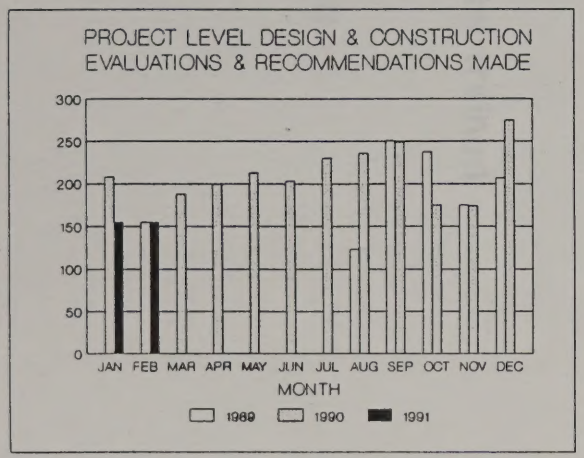












TECHNICAL SERVICES DIVISION

PERFORMANCE DATA

AUG. 1989 - FEB. 1991

TECHNICAL SERVICES DIVISION
1990 SERVICE TO CLIENTS

- 260 major engineering studies or research projects were completed
- 204 specifications or other quality assurance documents were prepared
- 2506 geotechnical or materials engineering designs or analyses for capital projects were performed
- 627 products or sources of materials for the Department's programs were evaluated
- 47,011 quality assurance samples of construction materials were tested and evaluated for specification compliance
- 2626 Department employees were trained by Division staff
- 1415 technical papers or research reports were exchanged

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